CALIFORNIA STATE FIRE TRAINING

COURSE INFORMATION AND REQUIRED MATERIALS

PO Box 944246, Sacramento, CA 94244-2460

Course: **Rescue Systems 2: Advanced Rescue Skills (2009)**
CFSTES

Hours: 40
Designed For: All fire service and allied emergency response personnel
Description: Provides advanced heavy rescue system techniques. Key topics include: Structural building types, wood and mechanical shores, crib capacities, floor weight calculations, building search, confined space considerations, damaged structure hazard assessment, use of power tools, air bags, and USAR ICS.
Prerequisites: Rescue Systems 1, Basic ICS
Certification: None
Class Size: 48
Student/Instructor: Ratio: 12/1 with 1 Primary Instructor and 1 Senior Instructor.
Restrictions: This course can only be delivered at a State Fire Training approved site.

REQUIRED STUDENT MATERIALS	EDITION	VENDORS
▪ Student Manual	2009	SFT
REQUIRED INSTRUCTOR MATERIALS		
▪ Instructor CD (PowerPoint Slides included)	2009	SFT
▪ Student Manual	2009	SFT

VENDORS	
SFT	State Fire Training Bookstore, PO Box 944246, Sacramento 94244 www.fire.ca.gov 916-445-8158

RESCUE SYSTEMS 2 COURSE OUTLINE

TOPIC 1-1 INTRODUCTION AND INTRODUCTION 1- HOUR

TERMINAL OBJECTIVE

At the conclusion of this portion the Student shall have received all information regarding course administration and operational requirements for successful completion

ENABLING OBJECTIVES

Students shall receive an introduction to all Instructors and support staff

- Students shall receive instructions on starting times and attendance requirements for successful completion of the course
- Students shall receive information and the necessary paperwork to complete all administrative processes required for successful completion
- Students shall receive an overview of the criteria for successful completion of the course
- Students shall receive an overview of the Student manual and its contents
- Students shall be broken into squads for operational periods. Squads shall be assigned to a division for rotation periods
- Students shall have the opportunity to introduce themselves if applicable

TOPIC 1-2 SAFETY 1-HOURS

TERMINAL OBJECTIVE

The student will understand the importance of including sound safety practices in all phases of the planning and rescue operations.

ENABLING OBJECTIVES

- Understand the importance of safety during all phases of a mission
- Understand the importance of recognizing and mitigating safety hazards
- Understand the importance of incorporating safety into rescue planning and briefing
- Adopt and employ the concept of "LCES" (Lookouts, Communications, Escape routes, and Safe zones)
- Be able to perform a risk hazard analysis for a specific event and suggest actions to minimize risks and/or eliminate hazards
- Understand issues related to personal and team security zones, as a planning tool.
- Understand the importance of safety risk and hazard identification

TOPIC 1-3 SURVIVAL 1-HOURS

TERMINAL OBJECTIVE

The Student shall understand the basic survival strategies during a large disaster if they should be isolated or separated from their support system.

ENABLING OBJECTIVES

- Understand the psychological importance of keeping a positive attitude
- Indentify suitable and safe shelter.
- Understand the importance of protective clothing and outerwear in disaster areas during inclement weather.
- Indentify potable water sources and how to construct a fire
- Be able to identify when travel is necessary, how to orientate your self to the environment, and how to build a signaling system.

TOPIC 1-4 SEARCH CAPABILITIES 1-HOUR

TERMINAL OBJECTIVE

Understand the reconnaissance strategies that should be employed to produce the best results for finding the most victims

ENABLING OBJECTIVES

- Establish search priorities and apply search strategies
- Identify reconnaissance team assignments and positions
- Understand the importance of incorporating safety into rescue planning and briefing
- Apply a range of search tools from simple voice call-outs to the use of more sophisticated electronic equipment and canines

TOPIC 1-5 STRUCTURE TRIAGE 4-HOURS

TERMINAL OBJECTIVE

The Student shall understand to the most appropriate strategies to be used to effect rescues in various types of structures by learning how to triage structures and identify trapped victim(s)

ENABLING OBJECTIVES

- Identify the phases of a disaster
- Apply tools used in structural triage and perform strucutural/hazard assessment
- Understand the variety of task assignments for the reconnaissance team
- Apply appropriate structural hazard markings to buildings
- Apply search and rescue assessment markings
- Perform a basic building search and rescue plan

TOPIC 2-1: COLLAPSE PATTERNS STRUCTURAL ENGINEERING 4-HOURS

TERMINAL OBJECTIVES

The Student shall understand the how building structures can be separated into specific types that exhibit unique collapse patterns when subjected to extreme forces due to Earthquake, Wind , and Explosions.

ENABLING OBJECTIVES

- Understand how earthquakes, wind and blast effects produce Unique effects on different types of structures
- Understand how each of these produce unique and recognizable collapse patterns
- Understand how this knowledge will allow us to recognize the difference between survivable & less-survivable voids

TOPIC 2-2: STRUCTURAL HAZARD IDENTIFICATION 4-HOURS

TERMINAL OBJECTIVES

The student will understand the most common signs of distress exhibited by damaged structures, as well as understand to the most common hazards found in damaged structures, and methods that have been used to used to mitigate them

ENABLING OBJECTIVES

- Identify how Concrete and Masonry crack, and how these cracks can be "**READ"** to predict future performance of these structures
- Identify the most common Hazardous Conditions that will occur in the four building types

TOPIC 3-1: BASIC SHORING 4-Hours

TERMINAL OBJECTIVES

The student shall identify the function and capacity limitations of the shoring used in US&R to support damaged structures and why and how shores are constructed

ENABLING OBJECTIVES

- The student shall be able to determine weights to be supported
- The student will be able to determine the appropriate shore to be constructed
- Understand the sequence of construction to minimize risk
- Understand how to inspect constructed shores

TOPIC 3-2: SHORING CONSTRUCTION 4-Hours

TERMINAL OBJECTIVE

The student shall learn how to maintain the integrity of all structurally unstable elements and learn how to properly transmit or redirect the collapse loads to stable ground

ENABLING OBJECTIVES

- Understand how to conduct a proper shoring size-up
- Identify locations for proper shoring placement
- Understand shoring team concepts and identify positions and purpose
- Understand different types of shoring components and equipment

TOPIC 4-1 BREAKING AND BREACHING 3-Hours

TERMINAL OBJECTIVES

The student shall properly breach, break, cut and burn to gain access through concrete, steel or other structural components during rescue operations in heavy floor, heavy wall, steel and concrete structures

ENABLING OBJECTIVES

- Correctly identify types of concrete and their components
- Identify concrete components and their importance to systems design
- Understand their importance during collapse rescue operations
- Identify concrete construction types
- Understand the properties, strengths and weaknesses of concrete and its components

- Correctly select tools or tool packages for rescue operations
- Identify functional parts of an exothermic torch
- Identify functional parts of an oxy-acetylene torch
- Effectively trouble shoot each tool as needed

TOPIC 4-2: TOOL APPLICATIONS AND ASSESSMENT 1-HOURS

TERMINAL OBJECTIVE

At the conclusion of this section, the Student shall demonstrate proficiency in the inspection, operation, maintenance and the safe use of all power tools

ENABLING OBJECTIVES

- Understand the operator's influence on tool performance
- Understand Electrical power sources, the electrical loads, and tool safety
- Understand the tool assessment criteria
- Be able to perform a pre-use inspection of all gas, fuel, pneumatic, hydraulic, and electric power tool systems

TOPIC 4-3 METAL BURNING 4-Hours

TERMINAL OBJECTIVES

The student shall understand the technology, capabilities and characteristics of each different metal burning system, be able to recognize different types of metals and their characteristics, as well as determine which metal burning system is best suited for a particular job or assignment

ENABLING OBJECTIVES

- Discuss and understand the functions that need to be performed by the burning teams
- Understand the advantages and disadvantages of the various types of metal burning equipment
- Understand the different and most expedient methods to be used with each cutting or burning system to safely accomplish the assigned task

TOPIC 5-1 LIFTING AND MOVING 8-hours

TERMINAL OBJECTIVES

The student shall size-up objects that have entrapped people and efficiently apply a variety of machines and power to safely move these objects.

ENABLING OBJECTIVES

- At the conclusion of this module the student should be able to:
- Demonstrate their understanding of basic physics as it relates to weight, gravity, center of gravity, and friction and resistance force.
- Demonstrate the use of mechanical advantage to move heavy objects.
- Demonstrate the effective use of air bags.
- Demonstrate proper load stabilization techniques.
- Demonstrate the use of a wedge anchor and eye nut.
- Calculate the weights of common materials.
- Use proper safety protocols.